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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>23 September 2009</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>18-34</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>18-34</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed **09/23/2009** have been fully considered but they are

not persuasive.

2.   **Claims 1-17** had been previously cancelled.

3.   **Claim 18** has been amended.

4.   **Claims 18-34** are currently pending.

"wherein computing the cell coverage comprises: dividing the region around said radio

base station into a number of first areas ... [and] dividing at least some of said first

areas into a number of second areas." and "for at least some target second areas of

said second areas, computing respective quantities indicative of the cell coverage within

said target second areas, each quantity being computed for the respective target

second area as a function of data describing an environment between said radio base

station and said target second area along a propagation path of a radioelectric signal

radiating out from said radio base station and passing through said target second area;

[and] each quantity being computed for the respective target second area as a function

of data describing the environment within at least some second areas close to at least

one of said radio base station and said target second area along the radioelectric signal

propagation path, and as a function of data describing the environment within at least

some first areas along the remaining stretch of the radioelectric signal propagation

path." 1) "data describing the environment between said radio base station and said

target second area along a propagation path..."; (2) "data describing the environment

within at least some second areas close to at least one of said radio base station and

said second area along the radioelectric signal propagation path..."; and (3) "data

describing the environment within at least some first areas along the remaining stretch

of the radioelectric signal propagation path" read on Bernardin in view of Olof as

follows;

Bernardin discloses a robust method for determining the boundaries of cells and

the associated reliability of the RF coverage within these boundaries. The invention

accurately determines the average range from the base station to the cell edge from RF

signal strength measurements with a linear regression approach. The accuracy of this

estimate is quantified both as a range uncertainty (e.g. .+-.100 meters) and as cell

coverage reliability (i.e. area/edge) through 1) simulation, 2) analysis of real data, and 3)

theoretical analysis. It is shown that if the estimate of the cell radius meets the desired

accuracy, then the corresponding estimates of coverage reliability (both area and edge)

are more than sufficiently accurate. It is recommended that radio survey analyses

incorporate this test as part of the coverage validation process. Bernardin's object of the

invention is to determine the number of signal strength measurements needed to

accurately estimate the cell radius R from the base station to the cell edge for both a

given cell contour and cell area reliability. A further object of the invention is to estimate

the coverage reliability of a cell with a finite number of signal strength measurements. A

still further object of the invention is to minimize the area from which samples are taken

in estimating cell radius. Bernardin further discloses that the areas are divided into the

first areas, and the second areas i.e., the cell coverage in **Fig. 1a-b**. Therefore,

Bernardin discloses that the reliability is computed by the propagation method. He

further discloses that the areas within the cell edge have greater reliability. He also

discloses the fade margin which included measurements and the cell reliability is based

on received points within the large area i.e., cell radius as disclosed in **Fig. 1a-b and**

Col. 4:51-52, as well as Col.4:58-63. Thus Bernardin shows the above mentioned

claimed limitations.

In regards to the applicant arguments concerning combination of the references,

both of the references are from the same field, i.e., communication system and

concerned analogues topics. Therefore, the examiner contends that the references

would be combinable to one of skilled in the art. Concerning the applicant's arguments

regarding motivation to combine the references, the motivation to combine was shown

in the secondary reference. Therefore, the argued limitations read upon the cited

references or are written broad such that they read upon the references.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18, 33-34 are rejected under 35 U.S.C. 102(b) as being anticipated by

Bernardin et al. (US 6,173,185 B1), hereinafter referenced as Bernard.

Consider **claim 18**, Bernard discloses a method for planning a radio

communications network **(Abstract, where Bernard discloses determining the**

boundaries of cells and the associated reliability of the RF coverage within these

boundaries). Bernard discloses that computing cell coverage, to indicate a region

around a radio base station where a radio electric signal radiating out from the radio

base station copes with given requirements **(Abstract, where Bernard discloses the**

cell coverage reliability); wherein computing the cell coverage comprises: dividing the

region around said radio base station into a number of first areas **(Figs.1a-b, where**

Bernard discloses first areas i.e. cell edge); dividing at least some of said first areas

into a number of second areas; and for at least some target second areas of said

second areas, computing respective quantities indicative of the cell coverage within said

target second areas **(Fig. 1b, where Bernard discloses areas within cell edge with**

greater reliability), each quantity being computed for the respective target second area

as a function of data describing an environment between said radio base station and

said target second area along a propagation path of a radio electric signal radiating out

from said radio base station and passing through said target second area **(Fig. 1b,**

where Bernard discloses reliability values computed by propagation method);

each quantity being computed for the respective target second area as a function of

data describing the environment within at least some second areas close to at least one

of said radio base station and said target second area along the radio electric signal

propagation path, and as a function of data describing the environment within at least

some first areas along the remaining stretch of the radio electric signal propagation path

(Col. 4:24-26, where Bernard discloses fade margin, Col. 4:51-52, where Bernard

discloses that the fading margin included in the measurements, Col. 4:58-63,

where Bernard discloses that the cell reliability is based on received points within

large area i.e. cell radius).

Consider **claim 33**, Bernard discloses everything claimed as implemented above

(see claim 18). In addition, Bernard discloses that wherein a processing capable of

being programmed to implement the method **(Fig. 5, where Bernard discloses**

computer system to implement the method).

Claim 34, as analyzed with respect to limitations as discussed in claim 33.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 19-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bernard in view of Olofsson (US 6,047,238), hereinafter referenced as Olof.

Consider **claim 19**, Bernard discloses everything claimed as implemented above

(see claim 18). Bernard does not explicitly disclose that wherein computing a second

quantity for a target second area comprises: checking availability of data describing the

environment within at least some second areas close to said radio base station and said

target second area; forming a mixed resolution environment profile describing the

environment between said radio base station and said target second area along said

radio electric signal propagation path, said mixed resolution environment profile

describing the environment within at least some second areas close to at least one of

said radio base station and said target second area depending on environment

descriptive data availability, and within at least some first areas along the remaining

stretch of the radio electric signal propagation path; and computing said quantity on the

basis of said mixed resolution environment profile.

Olof discloses that wherein computing a second quantity for a target second area

comprises: checking availability of data describing the environment within at least some

second areas close to said radio base station and said target second area **(Abstract,**

where Olof discloses detection of obstacles while generating paths profiles,

therefore describing the environment and availability of data); forming a mixed

resolution environment profile describing the environment between said radio base

station and said target second area along said radio electric signal propagation path

(Fig. 1, where Olof discloses generation of paths and obstructions observed in

radio electric signal propagation path), said mixed resolution environment profile

describing the environment within at least some second areas close to at least one of

said radio base station and said target second area depending on environment

descriptive data availability, and within at least some first areas along the remaining

stretch of the radio electric signal propagation path; and computing said quantity on the

basis of said mixed resolution environment profile **(Figs. 4, 5, where Olof discloses**

total path profile separation and adjacent obstruction and generating path

profiles based path profiles comparison). Therefore it would have been obvious to

one of ordinary skills in the art at the time the invention was made to modify Bernard

with the teachings of Olof so as to improve the topographical data as discussed on **Col.**

1:40-41.

Consider **claim 20**, the combination teaches everything claimed as implemented above (see claim 19). In addition, Olof discloses that wherein forming a mixed resolution environment profile comprises: identifying obstacles encountered by said radio electric signal within at least some first areas along the propagation path from said radio base station to said target second area; and forming the part of the mixed resolution environment profile describing the environment within at least some first areas along the remaining stretch of the radio electric signal propagation path so that said part describes the obstacles identified within said first areas **(Fig. 5, where Olof discloses generation, translation, transformation, and comparison of path profiles, therefore mixed resolution environment profile)**.

Consider **claim 21**, the combination teaches everything claimed as implemented above (see claim 20). In addition, Olof discloses that wherein forming the part of the mixed resolution environment profile describing the environment within at least some first areas along the remaining stretch of the radio electric signal propagation path so that said part describes the obstacles identified within said first areas comprises: consolidating identified obstacles which are spaced apart one from another at a distance lower than a given distance; and forming the part of the mixed resolution environment profile describing the environment within at least some first areas along the remaining stretch of the radio electric signal propagation path so that said part describes said consolidated obstacles **(Fig. 4, where Olof discloses translated and transformed path profiles)**.

Consider **claim 22**, the combination teaches everything claimed as implemented

above (see claim 20). In addition, Olof discloses that wherein obstacles encountered by

said radio electric signal within at least some first areas along the propagation path from

said radio base station to said second area are identified according to a stretched string

technique **(Fig. 1, where Olof discloses propagation of primary and adjacent path**

profiles).

Consider **claim 23**, the combination teaches everything claimed as implemented

above (see claim 19). In addition, Olof discloses that wherein forming a mixed

environment profile comprises: forming a first end and a second end of said mixed

resolution environment profile describing the environment within at least some second

areas close to said radio base station and said target second area depending on

environment descriptive data availability **(Fig. 1, where Olof discloses propagation of**

primary and adjacent path profiles).

Consider **claim 24**, the combination teaches everything claimed as implemented

above (see claim 19). In addition, Olof discloses that wherein computing said quantity

on the basis of said mixed environment profile comprises: identifying obstacles

encountered by said radio electric signal along the propagation path from said radio

base station to said target second area on the basis of said mixed resolution

environment profile; and computing said quantity on the basis of said identified

obstacles **(Fig. 5, where Olof discloses comparison of primary and adjacent path**

profiles).

Consider **claim 25**, the combination teaches everything claimed as implemented

above (see claim 24). In addition, Olof discloses that wherein said obstacles are identified according to a stretched string technique **(Fig. 3, where Olof discloses translated obstructions)**.

Consider **claim 26**, the combination teaches everything claimed as implemented above (see claim 24). In addition, Olof discloses that wherein computing said quantity on the basis of said identified obstacles comprises: computing attenuation by diffraction on said identified obstacles of a radio electric signal radiating out from said radio base station along the propagation path to said second area, wherein computing attenuation by diffraction comprises: computing a first contribution due to orographic obstacles; computing a second contribution due to buildings; computing a third contribution due to vegetation; and computing said attenuation by diffraction as a weighted sum of said first, second and third contributions **(Figs. 3, 4, where Olof discloses total path profile separation and translated obstruction)**.

Consider **claim 27**, the combination teaches everything claimed as implemented above (see claim 18). In addition, Olof discloses that wherein the environment within second areas close to said radio base station and said target second area along the radio electric signal propagation path is described by using a first resolution and the environment within first areas along the remaining stretch of the radio electric signal propagation path is described by using a second resolution lower than said first resolution **(Fig. 1, where Olof discloses raster separation and raster points and points used in path profiles)**.

Consider **claim 28**, the combination teaches everything claimed as implemented

above (see claim 18). In addition, Olof discloses that wherein said data describing the environment within said second areas close to said radio base station and said second area along the radio electric signal propagation path include average ground altimetry, information as to the presence of a building, vegetation or nothing, and height of the building or vegetation **(Fig. 1, where Olof discloses obstructions perceived in path profiles)**.

Consider **claim 29**, the combination teaches everything claimed as implemented above (see claim 18). In addition, Olof discloses that wherein said data describing the environment within said first areas along said at least part of the remaining stretch of the radio electric signal propagation comprises average ground altimetry **(Col. 6:12-19, where Olof discloses evaluating uncertainties of path profiles method)**.

Consider **claim 30**, the combination teaches everything claimed as implemented above (see claim 29). In addition, Olof discloses that wherein a quantity for a respective second area occupied by a building is computed as a function of quantities computed for second areas surrounding the second area occupied by the building **(Fig. 4, where Olof discloses translation, transformation and comparison path profiles)**.

Consider **claim 31**, the combination teaches everything claimed as implemented above (see claim 30). In addition, Olof discloses that wherein a quantity for a respective second area occupied by a building is computed as a weighted average of quantities computed for second areas surrounding the second area occupied by the building **(Col. 6:12-19, where Olof discloses average and standard deviation, primary and worst adjacent)**.

Consider **claim 32**, the combination teaches everything claimed as implemented above (see claim 31). In addition, Olof discloses that wherein said quantities computed for second areas surrounding the second area occupied by the building are weighted by using respective weights which are inversely proportional to the squared distance between the second area occupied by the building and the second areas surrounding the second area occupied by the building **(Col. 6:12-19, where Olof discloses average and standard deviation, primary and worst adjacent)**.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BABAR SARWAR whose telephone number is (571)270-5584. The examiner can normally be reached on MONDAY TO FRIDAY 09:00 A.M -05:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NICK CORSARO can be reached on (571)272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BABAR SARWAR/   /BS/
Examiner, Art Unit 2617

/NICK CORSARO/

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